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7055 7590 10/04/2007 GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191			EXAMINER WILSON, ROBERT W	
			ART UNIT 2616	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com
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Office Action Summary

Application No.

10/628,238

Applicant(s)

CHEN ET AL.

Examiner

Robert W. Wilson

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 6/12/07.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-10, 12, 14, 15 and 17-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-10, 14, 15 and 17-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date: 9/28/07
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This office action replaces the previous non-final office action dated 8/3/07.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-3 are rejected under 35 U.S.C. 102(E) as being anticipated by Hurren (U.S.

Patent No.: 6,788,681).

Referring to claim 1, Hurren teaches: A method for sending data through a provider network from an originating network to a destination network in a virtual private network (col. 2 lines 14 to 54) the method comprising:

encapsulating data link layer data from the originating network in a network layer packet (The ingress IPT card encapsulates the LAN data frame (data link layer) in an IP packet (network layer packet per col. 2 lines 14 to 54)

determining whether a data link layer address of a destination device in the destination network is mapped to a network layer address of an egress line interface in the provider network (The ingress IPT card determines if the egress IPT card's IP Destination address is retrievable from the database which associated the IP destination address with the MAC destination address per col. 2 lines 14 to 54)

when the destination device address is not mapped to the egress line interface address broadcasting the network layer packet to a multicast address associated with the VPN (If there is not an entry in the database for the IP Destination address associated with the MAC Destination address then the IP packet is sent to the multicast address for all IPT egress cards per col. 2 lines 14 to 54)

In addition Hurren teaches:

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Regarding claim 2, further comprising with the destination device address is mapped to the egress line interface address based on a previous transmission from the destination device unicast the network layer packet to the egress line interface, unicasting the network layer packet to the egress line interface address (The database is inherently created based upon receipt of a previously received packet or transmission from a destination device. The ipt ingress card would look up the value of the destination IP address based upon the destination MAC address and send to the single address or unicast per col. 2 lines 14 to 54)

Regarding claim 3, further comprising adding a VPN identification number corresponding to the VPN to the network layer packet (col. 3 lines 22 to 27) wherein the data link layer data from the network layer packet is decapsulated only when the VPN identification number is verified after the egress line interface received the network layer packet (The ipt card egress inherently decapsulated the packet when the VPN identification number is verified and forwards the frame to the inherent destination device per col. 3 lines 22 to 36)

4. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hurren (U.S.

Patent No.: 6,788,681) in view of Lamberton (U.S. Patent No.: 6,789,121)

Referring to claim 18, Hurren teaches: A method of providing broadband access for a customer in a virtual private network (VPN) (Fig 2A) comprising a plurality of local network (LANs) (12, 14, & 16 per Fig 2A) interfacing with at least one telecom service provide network (inherent provider for 10 per Fig 2A), each TSP network comprising a plurality of interfaces corresponding to the plurality of LANS (24 per Fig 2A) the method comprising:

Assigning a unique VPN identification number (VPN identifier per col. 3 lines 22 to 36)

Assigning a common multicast address to the plurality of interfaces (ipt card egress multicast address per col. 2 lines 14-54) and a unique unicast address to each of the plurality of interfaces (ipt card IP destination address)

Receiving data from an originating LAN the data being directed to a destination device in a destination LAN the origination LAN corresponding to an ingress interface of the plurality of interfaces and the destination LAN corresponding to an egress interface of the plurality of interfaces (The ipt ingress card receives LAN data with a MAC destination address corresponding to the ipt egress card of a plurality of ipt egress cards per col. 3 lines 22 to 36)

When the destination device address is not mapped to the destination LAN encapsulating the data in a multicast packet having the unique address of the ingress interface as a source address and the multicast address as a destination address (When the destination address in the LAN packet which inherently carries a MAC source address is sent to a ipt egress card whose IP Destination address is not mapped in the database with the corresponding MAC destination

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address the LAN packet is encapsulated and sent to the multicast address as a destination address which is associated with the IPT card egress VPN per col. 3 lines 22 to 36)

Transmitting the encapsulated data to all interface corresponding to the plurality of LANs based on the multicast address (The IPT ingress card encapsulates the LAN data corresponding to the plurality of LANs and sends to the multicast address as a destination address which is associated with the IPT cards egress VPN per col. 3 lines 22 to 36) wherein the frame is decapsulated only at the egress interface and the egress interface forward the frame to the destination device (The IPT card egress decapsulated the packet and forward the frame to the inherent destination device only if the VPN identifier is appropriate per col. 3 lines 22 to 36)

Hurren does not expressly call for: VPN identifier assigned to a customer.

Lamberton teaches: VPN identifier assigned to a customer per Fig 1.

It would have been obvious to one of ordinary skill in the art at the time of the invention to add VPN the customer identifier of Lamberton to the VPN of Hurren so that a single customer traffic can be uniquely routed over a public network

5. Claim 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hurren (U.S. Patent No.: 6,788,681) in view of Lamberton (U.S. Patent No.: 6,789,121) further in view of Blanchet (U.S. Patent Publication No.: US2004/0013130)

Referring to claim 19, the combination of Hurren and Lamberton teach: the method of broadband access according to claim 18 and Hurren teaches: further comprising with the destination device address is mapped to the egress line interface address based on a previous transmission from the destination device unicast the network layer packet to the egress line interface, unicasting the network layer packet to the egress line interface address (The database is inherently created based upon receipt of a previously received packet or transmission from a destination device. The IPT ingress card would look up the value of the destination IP address based upon the destination MAC address and send to the single address or unicast per col. 2 lines 14 to 54

The combination of Hurren and Lamberton do not expressly call for: IPv6 packets

Blanchet teaches: IPv6 packets per Ph 1 Para [005]

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the IPv6 packet of Blanchet in place of the IP packet (inherently IPv4) of the combination of Hurren and Lamberton because IPv4 packet's address space is running out and all IPv4 system will eventually have to be replaced with IPv6 in order to withstand the growth associated with the Internet.

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In addition Hurren teaches:

Regarding claim 20, further comprising: entering the VPN identification number in one of the multicast packet and the unicast packet (col. 3 lines 22 to 27) wherein the egress interface reads the VPN identification to verify that the received packet is associated with the VPN (IPT card egress inherently reads the VPN identification in order to verify that the received packet is associated with the VPN per col. 2 lines 14 to 54)

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 21, 5-6, & 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hurren (U.S. Patent No.: 6,788,681) in view of Blanchet (U.S. Patent Publication No.: US2004/0013130)

Referring to claim 21, Hurren teaches: A method for providing broadband access to a virtual a virtual private network (Fig 2A) comprising a plurality of local area networks (LANS) (12, 14, & 16 per Fig 2A) configured to interface with an service provider (inherent provider for 10 per Fig 2A) through broadband access links (connection via 24 per Fig 2A) the method comprising:

encapsulating the LAN frame from an originating LAN of the VPN in an IP packet of the service provider network (The ingress IPT card encapsulates the LAN data frame in an IP packet (network layer packet) via inherent service provider network per col. 6 line 62 to col. 9 line 36)

adding a VPN identification number corresponding to the VPN to the IP packet (The ingress IPT receives a LAN frame adds a TID (VPN identification number) corresponding to the VPN and encapsulate the LAN frame into an IP packet which is directed to the egress or 2nd IPT card per col. 6 line 62 to col. 9 line 36)

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determining whether an address of a destination device in a destination LAN is mapped to an egress line interface (The ingress IPT card determines if the egress IPT card's IP Destination address is retrievable from the database which associated the IP destination address with the MAC destination address per col. 6 line 62 to col. 9 line 36)

when the address of the destination device address is not mapped to the egress line interface address broadcasting the IP packet to a multicast address with the VPN (If there is not an entry in the database for the IP Destination address associated with the MAC Destination address then the IP packet is sent to the multicast address for all IPT egress cards per col. 6 line 62 to col. 9 line 36)

wherein the IP packet is received at the egress line interface based on the multicast address, the LAN frame being decapsulated and transmitted to the destination LAN when the VPN identification number is verified (The IPT card egress inherently decapsulated the packet when the VPN identification number is verified and forwards the frame to the inherent destination device per col. 6 line 62 to col. 9 line 36)

Hurren does not expressly call for: IPv6 packets

Blanchet teaches: IPv6 packets per Pg 1 Para [005]

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the IPv6 packet of Blanchet in place of the IP packet (inherently IPv4) of Hurren because IPv4 packet's address space is running out and all IPv4 system will eventually have to be replaced with IPv6 in order to withstand the growth associated with the Internet.

In addition Hurren teaches:

Regarding claim 5, wherein the IPv6 packet is discarded when the VPN identification number is not verified (If TID of VPN identification is not recognized then the packet is discarded per col. 6 line 62 to col. 9 line 36)

Regarding claim 6, in which the IPv6 packet includes an IPv6 address of an egress line interface to which the IPv6 packet is routed for verification as an destination address when the address of the destination address is mapped to the egress line interface (If the destination address is recognized then the packet is routed to the egress line and the address is inherently verified prior to forwarding to an inherent end device per col. 6 line 62 to col. 9 line 36)

Regarding claim 12, further comprising: mapping an address of the egress line interface to the address of the destination device based on address information received by the ingress line interface in transmission form the destination address (col. 6 line 62 to col. 9 line 62) and

Transmitting subsequent IPv6 packets to the destination advice using a unicast address of the egress line interface based on the mapping (col. 6 line 62 to col. 9 line 36)

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8. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hurren (U.S. Patent No.: 6,788,681) in view of Blanchet (U.S. Patent Publication No.: US2004/0013130) further in view of Khalil (U.S. Patent No.: 7,110,375)

Referring to claim 7 the combination of Hurren & Blanchet teach: the method for providing broadband access of the VPN according to claim 4 and IPv6 packet

The combination of Hurren and Blanchet do not expressly call for: VPN number in a header extension per Fig 4

Khalil teaches: VPN number in a header extension (VPN INDEX or VPN number per Figs 5 & 6)

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the VPN number in the header extension Khalil to system of the combination of Hurren and Blanchet in order to build a system in which packets can be routed on a VPN basis.

Referring to claim 8 the combination of Hurren, Blanchet, and Khalil teach the method for providing broadband access to the VPN according to claim 7 and the VPN identification number.

Hurren and Khalil do not expressly call for: VPN identification number to include a multiple of four octets

Blanchet teaches: VPN identification number to include a multiple of four octets (370 per Fig 4 is made up of 32 bits or four octets)

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the VPN identification number which is a multiple of four octets of Blanchet to the VPN of the combination of Hurren, Blanchet, and Khalil in order to utilize a 32 bit word format of Figure 4.

Referring to claim 9, the combination of Hurren, Blanchet, and Khalil teach: the method for providing broadband access to the VPN according to the claim 7 and Khalil teaches in which the optional header extension further identifies (VPN index) further identifies the VPN

The combination of Blanchet and Khalil do not teach: discarding the IPv6 packet when the egress interface does not recognize the destination

Hurren teaches that the IPT discard the IP packet when it does not recognize the destination.

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It would have been obvious to one of ordinary skill in the art at the time of the invention to add the discarding of Hurren to a system which sends the VPN Identifier in an optional header extension of the combination of Hurren, Blanchet, and Khalil in order to utilize the optional header extension for sending the VPN identifier.

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hurren (U.S. Patent No.: 6,788,681) in view of Blanchet (U.S. Patent Publication No.: US2004/0013130) in view of Khalil (U.S. Patent No.: 7,110,375) further in view of Mannam (Patent Pub No.: US2004/0105459)

Referring to claim 10, combination of Hurren, Blanchet, and Khalil teach: the method for providing broadband access to the VPN according to the claim 7 and Khali teaches in which the header extension further identifies (VPN index) further identifies the VPN and IPv6

The combination of Hurren, Blanchet and Khalil do not teach: the optional header extension further identifies a VPN hop number which indicates a number of line interfaces that transmit the packet.

Mannam teaches: the optional header extension further identifies a VPN hop number which indicates a number of line interfaces that transmit the packet (Time to live or hop count which keeps track of the number of switches per Pg 4 Para[0046])

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the optional header extension further identifies a VPN hop number which indicates a number of line interfaces that transmit the packet of Mannam to the optional header of the combination of Hurren, Blanchet, and Khalil in order to build a system which keeps track of the time to live of a packet.

10. Claims 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hurren (U.S. Patent No.: 6,788,681) in view of Blanchet (U.S. Patent Publication No.: US2004/0013130)

Referring to claim 22, Hurren teaches: An interface device for providing broadband access to a virtual private network (VPN) the VPN comprising a plurality of local area networks (LANs) configured to interface with an IPv6 service provider network (The IPT is the interface device per col. 6 line 62 to col. 9 line 36), the interface device comprising:

An ingress line interface connectable to at least one LAN via broadband access link (The IPT has line input 24 per Fig 21 to connect an LAN to a SONET ring per col. 6 line 62 to col. 9 line 36)

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A receiving configured to receive a LAN frame from a first LAN of the at least one LAN at the ingress line interface corresponding to the first LAN to encapsulated the LAN frame in an IP packet and to add a VPN identification number corresponding to the VPN to the IPv6 packet the LAN frame directed to a second LAN (The iPT card receives the frame from a first LAN (12 per Fig 2A) at the line into 24 per Fig 2A per ingress line interface corresponding to (12 per Fig 2A) and encapsulates the LAN frame into IP and adds a TID (VPN identification) and directs the LAN frame to the second (12 per Fig 2A) per col. 6 line 62 to col. 9 line 36)

An ingress virtual bridge corresponding to the ingress line interface, configured to associate an address of the destination device in the second LAN with an address of an egress line interface of the second interface device (The ingress iPT card corresponding to input 24 per Fig 2A (ingress line interface) is configured to associated the destination address of the of the second LAN with an address in an inherent table (ingress virtual bridge) per col. 6 line 62 to col. 9 line 36)

Wherein the first interface device broadcasts the IP packet to a multicast address associated with the VPN when the ingress virtual bridge is not able to associate the address of the destination device in the second LAN with the address of the egress line interface of the second interface device (The first ipT card sends the IP packet to a multicast address or broadcasts associated with the VPN when the inherent table in the first iPT does not recognize the destination address per col. 6 line 62 to col. 9 line 36)

Wherein the second interface device receives the IP packet at the egress line interface based on the multicast address (The egress or second iPT card receive the packet at line 24 per Fig 2A or egress line interface based upon the multicast address per col. 6 line 62 to col. 9 line 36)

Hurren does not expressly call for: IPv6 packets

Blanchet teaches: IPv6 packets per Pg 1 Para [005]

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the IPv6 packet of Blanchet in place of the IP packet (inherently IPv4) of Hurren because IPv4 packet's address space is running out and all IPv4 system will eventually have to be replaced with IPv6 in order to withstand the growth associated with the Internet.

In addition Hurren teaches:

Regarding claim 17, the second interface device further comprising an egress virtual bridge corresponding to the egress line interface the egress virtual bridge mapping an address of an originating device in the first LAN with the address of the ingress line interface after the second interface receives the broadcast Ipv6 packets directing to the originating device to the address of the ingress line based on the mapping (egress or 2nd iPT card learns the address so it can send the packet directly per col. 6 line 62 to col. 9 line 36)

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Regarding claim 23, wherein the second interface device verifies the VPN identification number, decapsulates the LAN frame when the VPN identification number is verified and transmits the LAN frame to the second LAN (Egress or second IPT verifies the TID and transmits the LAN frame to the second LAN per col. 6 line 62 to col. 9 line 36)

Regarding claim 14, wherein the second interface discards the IPv6 packet when it is not able to verify the VPN identification number (Egress or second IPT discards when not able to verify the TID per col. 6 line 62 to col. 9 line 36)

11. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hurren (U.S.

Patent No.: 6,788,681) in view of Blanchet (U.S. Patent Publication No.: US2004/0013130)

further in view of Khalil (U.S. Patent No.: 7,110,375)

Referring to claim 15, the combination of Hurren and Blanchet teach: the interface device for providing the broadband access to the VPN according to claim 23 and broadband access to the VPN and an IPv6 packet and a VPN identification number

The combination of Hurren and Blanchet do not teach: VPN identification number in a header extension.

Khalil teaches: VPN identification number in a header extension (VPNI or index is the VPN number in the optional header extension per col. 11 lines 1 to 12 and Figs 5 & 6) .

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the VPN identification number in a header extension of Khalil in place of the VPN identifier of the combination of Hurren and Blanchet in order to incorporate the VPN identifier into a frame format.

Response to Amendment

12. Applicant's arguments with respect to claims 1-3, 5-10, 12, 14-15, & 17-22 have been considered but are moot in view of the new ground(s) of rejection.

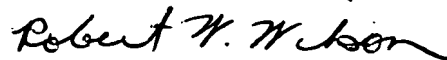
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Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert W. Wilson whose telephone number is 571/272-3075. The examiner can normally be reached on M-F (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edan Orgad can be reached on 571/272-7884. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Robert W Wilson
Examiner
Art Unit 2616

RWW
9/28/07